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MEDICAL NEWS LETTER

Rear Admiral Bartholomew W. Hogan MC USN - Surgeon General
Captain Leslie B. Marshall MC USN (RET) - Editor

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HISTORICAL FUND
of the
NAVY MEDICAL DEPARTMENT

A committee has been formed with representation from the Medical Corps, Dental Corps, Medical Service Corps, Nurse Corps, and Hospital Corps for the purpose of creating a fund to be used for the collection and maintenance of items of historical interest to the Medical Department. Such items will include, but will not be limited to, portraits, memorials, etc., designed to perpetuate the memory of distinguished members of the Navy Medical Department. These memorials will be displayed in the Bureau of Medicine and Surgery and at the National Naval Medical Center. Medical Department officers, active and inactive, are invited to make small contributions to the fund. It is emphasized that all donations must be on a strictly voluntary basis. Funds received will be deposited in a Washington, D. C. bank to the credit of the Navy Medical Department Historical Fund, and will be expended only as approved by the Committee or its successor and for the objectives stated.

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Nephrotic Syndrome in Adults

The metabolic, nutritional, and clinical consequences of continued massive albuminuria constitute the nephrotic syndrome. Florid cases are readily recognized from infancy to extreme old age, and the diagnosis can be rapidly confirmed in the laboratory by urinalysis and simple biochemical studies of the blood. From experience with 98 adult patients studied by renal biopsy, it is apparent that the syndrome may be due to a variety of causes and different pathologic changes in the kidney. The confusion which still exists about the different etiologies of the nephrotic syndrome has been caused by semantic difficulties, by the lack of correlation between pathologic findings and clinical data, by disharmonious views of pediatricians and internists about the natural history of the syndrome and by imperfect knowledge of the mechanisms which produce its metabolic and clinical manifestations.

The well known metabolic hallmarks of the nephrotic syndrome are proteinuria, hypoalbuminemia, and hypercholesterolemia. But the full-blown picture presents many more biochemical aberrations than this. Albumin is the major protein lost in the urine and accounts for approximately 70% of the total. Other plasma proteins, such as ceruloplasmin, also run to waste in the urine. The continued drain of nitrogen in the urine also compromises the tissue and cellular stores of protein and the clinical consequence of this impoverishment are tissue wastage, malnutrition, fatty metamorphosis of the liver, sodium retention, hydremia, and edema. Depletion of complement makes the nephrotic patient particularly susceptible to infection; loss of specialized proteins, such as those which bind thyroid hormone and iron, explains satisfactorily the apparent hypothyroidism and tendency to anemia. More difficult to explain is the marked increase in circulating serum lipids and relatively large plasma proteins, such as cholinesterase and fibrinogen.

Massive loss of albumin in the urine is not invariably accompanied by all of the clinical or biochemical stigmata of the nephrotic syndrome. The loss of protein may not be sufficient to overwhelm the body's homeostatic mechanisms, and clinical edema may never appear. These patients with subclinical forms feel well and rarely appear in the clinic unless proteinuria is detected on routine examination.

The many conditions reported to have been associated with the nephrotic syndrome are summarized in a Table. It is immediately evident that the nephrotic syndrome is not a single disease entity, but the metabolic expression of a wide variety of underlying disease states. It may be the result of: (1) primary renal disease, such as lipoid nephrosis or glomerulonephritis; (2) renal disease associated with systemic illnesses, such as diabetes mellitus, systemic lupus erythematosus or amyloidosis; or (3) pressure effects on the venous system draining the kidney, e.g., renal vein thrombosis or constrictive pericarditis.

Rare causes today—but more common in the past—were infectious diseases such as secondary syphilis, tuberculosis, and diphtheria. In tropical

climates, the nephrotic syndrome has been occasionally reported in patients suffering from quartan malaria. More recently, the nephrotic syndrome has been observed in cases of subacute bacterial endocarditis.

The adult who is ill with the nephrotic syndrome comes to the doctor because he has edema. In most instances, physical examination and laboratory investigations, including tests of renal function, do not help in making a differential diagnosis. If azotemia is severe, and if renal function is markedly impaired, then one can usually predict that there is severe structural damage to the kidney. The converse does not hold: there can be marked structural changes to the glomeruli with little alteration in renal function; with comparatively normal glomeruli, mild or moderate degrees of azotemia may be found. It is true that meticulous history taking is the best clue to the underlying disease. Nevertheless, in many patients with nephrotic syndrome, the only complaint is edema. These circumstances make renal biopsy a valuable tool in the exact diagnosis of the disease—as is indicated in this article—there may be a wide variety of pathologic patterns associated with the nephrotic syndrome.

As long as the physician considers that the nephrotic syndrome is a single entity with a poor prognosis, he will tend to adopt a pessimistic approach to its treatment. Discovering exactly what is wrong with the patient is useful because it provides a rational approach to therapy and stimulates the physician to continue to seek the latest therapeutic advances in the treatment of that particular disease. (Kark, R. M., et al., The Nephrotic Syndrome in Adults - A Common Disorder with Many Causes: Ann. Int. Med., 49: 751-771, October 1958)

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Rheumatic Pneumonitis

During the past 8 years, the authors have had the opportunity to follow 16 patients with severe rheumatic fever who died, whose autopsy studies revealed characteristic, but not specific, microscopic changes in the lung parenchyma compatible with the diagnosis of rheumatic pneumonitis, in addition to the usually observed changes in rheumatic heart disease. Seven patients with severe rheumatic fever who survived were selected, and who the authors believed, had rheumatic pneumonitis because their findings were strikingly similar to those of the 16 patients who died.

Chest roentgenograms were obtained in 12 of the 16 patients. All but one revealed definite cardiac enlargement. The enlargement was usually generalized and of a marked degree. Only 10 of the 12 patients demonstrated roentgenographic evidence of pneumonia. One of the 2 patients, without roentgenographic evidence of pneumonia died the day following his last examination; pathologic examination confirmed the presence of rheumatic pneumonia. No

explanation for the lack of roentgenographic findings was apparent. The other patient did not have roentgenographic examinations within the terminal period.

Of the 10 patients with roentgenographic evidence of pneumonia, 7 exhibited diffuse, homogeneous, zonal infiltrates variously occupying the inner, middle, and outer thirds of the lung field. This infiltrate was usually bilateral and was characterized by a clear zone about the hila. The appearance was similar to that seen in so-called "azotemic pneumonia" or "acute pulmonary edema."

Two patients demonstrated segmental or lobar infiltrates suggesting organization or infarction. One patient appeared to present both types of infiltrates. Although subsequent pathologic examination of the specimens revealed instances of these distinct types of infiltrates, the correlation with the roentgenographic findings was poor.

The authors believe that attention should be focused upon the subject of rheumatic pneumonitis to emphasize that this rheumatic manifestation does occur in children and may be suspected antemortem and definitely recognized postmortem.

Although much has been written upon the subject, there is relatively little reference to rheumatic pneumonitis exclusively in the pediatric literature. This manifestation may not be recognized as a reaction of the pulmonary vasculature to injury by rheumatic fever, but considered as a secondary reaction to profound myocarditis, congestive failure, or pulmonary edema.

It is important not to confuse rheumatic pneumonitis with bacterial pneumonitis or the more remote possibility of viral pneumonitis so that therapy is not directed too strongly in those directions. Bacterial pneumonia was not a likely possibility in the 23 patients of this group. All patients received parenteral penicillin and streptomycin for the greater portion of their illnesses. Those patients who received hormone were also usually placed upon Achromycin. The zonal distribution and migrating character of the pneumonia by roentgenographic examination made bacterial pneumonia unlikely. Finally, at autopsy, evidence of bacterial pneumonitis was found in 7 of the 16 patients, but the involvement was quite minimal and was felt to be noncontributory to death.

Viral pneumonitis was not absolutely ruled out in the patients who survived, but in the patients who succumbed, the pathologic picture in the lungs did not support this possibility in any of the patients. At best, viral pneumonitis, although not absolutely excluded, would be a remote possibility.

The changeable character of the roentgenographic appearance of the lungs as illustrated in the cases presented would make it unlikely that the lung involvement was secondary to congestive failure, to profound myocarditis, or to pulmonary edema, although the infiltrate upon spot examination cannot be distinguished radiographically from acute pulmonary edema. The presence of rheumatic pneumonitis should certainly be considered a grave

prognostic development in the course of rheumatic fever and is a definite threat to survival. In those patients who do survive and whose pneumonitis clears, there is a severe degree of residual heart disease. This is not surprising because during the illness there is striking evidence of severe cardiac disease as found by auscultatory, roentgenographic, and electrocardiographic studies. The authors recognize the possibility that there may be mild forms of rheumatic pneumonitis and conceivably the lungs may be minimally involved, so that survival is possible. In their experience, this has not been encountered and they regard rheumatic pneumonitis as an indication for continued vigorous therapy until there is evidence of quiescence of the disease in the lungs as well as in the heart.

The evaluation of therapy in this group of patients is difficult. Although the patients are reported as a group, the natural course of the disease was quite different for each patient. This is true for the milder forms of rheumatic fever and has been one of the reasons for divergent views about effectiveness of hormone therapy. A truly controlled series would mean selecting patients who will have comparable natural courses of rheumatic fever—and obviously this is not possible.

Because this group of patients had severe rheumatic fever, one has to evaluate the therapy as it affected the survival rate of the patients. There is the suggestion that hormone therapy might have been responsible for survival in some of the patients. There is also an impression that the severity of the residual heart disease was less in some of the survivors who received hormone. However, one cannot look upon hormone therapy as dramatically efficacious in the severe form of rheumatic fever. In view of the authors' experience and the experiences of others, the role of hormone therapy in rheumatic fever is still unsettled and, because of this, the authors believe that hormone therapy should not be witheld in the severe forms of rheumatic fever. (Goldring, D., et al., Rheumatic Pneumonitis. Part II. Report on the Clinical and Laboratory Findings in Twenty-Three Patients: J. Pediat., 53: 547-565, November 1958)

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Adenomyosis

Adenomyosis is infrequently diagnosed and its symptomatology is not clearly understood by many physicians. The purpose of this investigation was to (1) ascertain the rate of occurrence, extent, and accuracy of diagnosis of adenomyosis in a private general hospital; (2) to demonstrate how adenomyosis and concomitant significant abnormalities affect the patient; and (3) to show adenomyosis as a clinical problem exclusive of coexisting disorders capable of producing similar symptoms. Such a reappraisal should aid in earlier and more accurate diagnosis as well as better treatment of abnormal uterine bleeding and pelvic pain.

Only those cases with endometrium extending into the myometrium more than two standard low-power fields and associated with muscle changes were accepted as examples of adenomyosis. Included in this study are 701 consecutive cases representing all instances of this entity treated at Emanuel Hospital, Portland, Ore., January 1950 through December 1957, in women of 50 years of age or under and still having menses. The youngest patient was 18 years of age. The average age was 40.9 years with a notable increase in the number of women with adenomyosis after 40 years of age.

During the 7-year period, 2536 total and subtotal abdominal hysterectomies and 740 total vaginal hysterectomies were performed at this hospital on women in the age group, 18 through 50 years. Seven hundred and one instances of adenomyosis were found in 3276 uteri, an incidence of 21.4%.

Adenomyosis can occur in any portion of the uterus as a more or less circumscribed lesion (adenomyoma) or, more commonly, as a diffuse process in several portions of the organ. These two types were considered together. The lesion is most frequently discovered in the posterior wall, less frequently in the anterior uterine wall, and rarely involving only the cornua or a portion of the uterus near the internal os.

Adenomyosis is a proliferative process, now and then obscured when fibromyomas are present, but usually recognizable on scrutiny. Classically, in the unfixed surgical specimen, the uterus is enlarged—often symmetrically—and is irregularly firm. In addition, increased vascularity of the corpus may be seen. Incision into an involved area may disclose a marked thickening of the uterine wall. Findings are variable, but include coarsely trabeculated areas, stippled or granular in appearance with small yellowish or darker cystic points which may contain serous fluid or old blood. The cut surface appears convex and bulging. An irregularity of the endometrial-myometrial juncture is often apparent, with dipping-down of the lining epithelium of the cavum more or less perpendicularly into the whorled firm prominent muscle. The inner aspect of the uterus is always the more seriously involved. It is a diffuse tumor process with ill-defined borders.

Cullen formulated the axiom that adenomyosis is the likely diagnosis when dysfunctional bleeding and increasingly severe dysmenorrhea accompany an enlarging firm tender uterus. Admittedly, the diagnosis must be presumptive until the anatomical studies are completed. Ward and White have stated that adenomyosis should be strongly considered when painful dysfunctional bleeding is reported, especially in the woman who is 40 to 50 years of age. The authors agree that this conclusion is rarely achieved in clinical practice. Emge diagnosed and succeeded in confirming the preoperative diagnosis in 65% of his cases, but even the specialists may be overly impressed by irregularity of the uterus or questionable adnexal pathology. As it is, the diagnosis has been "largely guesswork, subject to errors of omission or erroneous consideration." The fact is that adenomyosis is simply not considered preoperatively as the present study of the recorded multiple diagnostic possibilities indicates.

Seven hundred and one consecutive instances of adenomyosis in menstruating women, 18 through 50 years of age, were treated at the Emanuel Hospital, Portland, Ore., 1950 - 1957, inclusive. The incidence of adenomyosis in hysterectomy specimens during this time was 21.4% in women of this age distribution.

An appraisal of the signs and symptoms of adenomyosis was made with reference to age, parity, menstrual difficulties, enlargement of the uterus, extent of adenomyosis, and associated medical, surgical, and gynecological disorders. The likelihood of adenomyosis as a cause of the symptomatology was estimated. Three group of patients were compared: (1) those found to have symptomatic adenomyosis only; (2) those with abnormal uterine bleeding and pelvic pain with adenomyosis, together with other conditions also capable of causing these difficulties; and (3) those with asymptomatic adenomyosis whose uterine disease was discovered incidentally at operation.

Menorrhagia was the most common sign and dysmenorrhea was the most usual symptom of adenomyosis. Symptomatic adenomyosis was most often found in the slightly or moderately enlarged uterus. As the size increased, other associated pathological conditions (myomas, et cetera) became notable. Adenomyosis was rarely found to be the sole cause of marked enlargement of the uterus.

As age increased, the stage of adenomyosis tended to progress. Parity was also related to the extent of adenomyosis, to a degree, as was the duration of the symptoms of pain and/or bleeding. Myomas were frequently associated with adenomyosis, but hyperplasia of the endometrium and pelvic endometriosis were not commonly noted.

Despite the fact that the symptomatology should have led to a preoperative diagnosis of adenomyosis in many instances, it was diagnosed in less than 10% of the cases before operation. On the other hand, the surgical pathologist made the diagnosis in 66.7% of the gross specimens. Adenomyosis is a serious, progressively disabling disorder of the premenopausal woman. (Benson, R.C., Sneeden, V.D., Adenomyosis - A Reappraisal of Symptomatology: Am J. Obst. & Gynec., 76: 1044-1056, November 1958)

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Radiation Therapy of Carcinoma of the Pancreas

Carcinoma of the pancreas is a disease seldom cured by any form of therapy. In most cases of cancer of the pancreas, the disease is recognized and properly diagnosed only in its late stages. The symptomatologic studies indicate that there is a latent period in this condition and, in addition, a long period from the first symptom to the establishment of the correct diagnosis averaging about 6.4 months in the present series of 209 cases of cancer of the pancreas. The presence of jaundice is observed in only 50 to 60% of

cases of cancer of the head of the pancreas and is absent in cancers of the tail of the pancreas. Jaundice is a sign of advanced disease.

Ninety-one out of 209 cases of carcinoma of the pancreas were treated with irradiation. Practically all were admitted with advanced disease. Some were in extremis, remaining alive for only a few days or weeks. The cases for irradiation were not selected except that they were explored, biopsied, and considered inoperable. Thirty-four patients were treated, using 180-250 kv., 12 were treated with a 4 gm. teleradium pack; 20 were treated with the 1000 kv. apparatus; and 20 with the 22.5 million volt betatron apparatus. Four cases were treated with interstitial radon seeds alone and one case was treated with iridium 192. Radioactive gold, radioactive phosphorus, and radioactive chromic phosphate were used in some cases to control ascites. A number of patients could not complete therapy because of the advanced state of their disease. Others tolerated therapy well enough to be able to have a second series when recurrence became evident. Patients with widespread metastatic disease did not tolerate the therapy well and often it was not completed.

The best results were obtained in patients with disease still fairly well localized to the pancreas and regional lymph nodes. Review of the pathologic material gave no indication of which type of tumor might be more radiosensitive. The chief obstacle to the proper treatment of cancer of the pancreas is the present-day inability to diagnose this disease in its initial stage during its latent period when no specific clinical or laboratory tests are available. During this period, which might last for 6 months or more, no other symptoms except some discomfort and pain in the upper abdomen are evidenced, and an occasional jaundice of varying degrees of gravity might occur. When examined at this latent period of the disease, patients might occasionally show a tendency to a moderate hyperglycemia and an increase in the blood amylase content. Roentgen examination as a rule gives evidence of the disease only after some alterations in the antral portion of the stomach or in the duodenum are present. It has been shown that the widening of the duodenal loop, once considered the most common roentgen finding in this disease, occurs infrequently and usually only after the disease is quite advanced.

Thus, the only alternative in the earlier diagnosis of cancer of the pancreas is laparotomy and biopsy which should be performed when a patient, particularly one who is 60 years of age or over, complains of persistent pain in the upper abdominal region, even if there is no sign of jaundice or roentgenographic evidence of alteration of the upper gastrointestinal tract.

If the disease is localized and there are no lesions in the duodenum or the liver, a total pancreatectomy should be the operation of choice. Postoperative carbohydrate disturbances can be controlled in such instances with small doses of insulin; fatty liver and ascending cholangitis can be prevented by proper dietary control as well as by choledochojejunostomy en Y. If the disease is advanced and jaundice is present, cholecystojejunostomy is then

considered by many surgeons as the best palliative measure to relieve pain and jaundice. Indeed, this appears to offer as much as the more radical palliative pancreatoduodenectomy.

Although many physicians and even some radiotherapists are not very enthusiastic about radiation therapy of this disease, the authors' findings seem to indicate its value as a palliative measure in relieving pain and minimizing jaundice. The only contraindication is persistent vomiting where irradiation might aggravate this symptom. The authors' experience indicates that radiation therapy should be initiated shortly after surgery, preferably 2 to 3 weeks afterwards. The over all picture showed that radiation therapy improved the general condition of patients, reduced pain, and decreased jaundice.

This treatment of cancer of the pancreas should be considered as a palliative measure only, an adjunct to surgery. The best results were achieved when the disease—although inoperable—was limited to the local area. The complications of radiation therapy were negligible in the patient whose general condition was relatively good. Palliation in the form of relief of pain, decrease in size of mass, and improvement in the general condition was noted in many cases.

In view of the clinical evidence that pancreatic cancer is often sensitive to irradiation, the following method of treatment is suggested: (1) exploratory laparotomy and biopsy if the patient is considered inoperable; (2) cholecystojejunostomy and gastroenterostomy in the presence of jaundice and duodenal obstruction; (3) implantation of gold filtered radon seeds or seeds of iridium 192, being careful not to exceed a measured tissue dose as the pancreas often becomes necrotic when overdosed; (4) subsequent external irradiation with supervoltage apparatus or a radioactive source in the 1 mev. or better range. (Miller, T. R., Fuller L. M., Radiation Therapy of Carcinoma of the Pancreas - Report on 91 Cases: Am. J. Roentgenol., 80: 787-701, November 1958)

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Therapy for Gastroduodenal Hemorrhage

Although the management of upper gastrointestinal bleeding is a frequently recurring problem, there is very little evidence in the literature upon which conclusions may be based as to which of the various methods of management is most satisfactory. There is a lack of objective criteria in reporting, of uniformity of patients, facilities, and personnel with which to establish comparisons. The deficiencies in objective criteria are principally related to a lack of definition of what is an "acute bleeder" and what is a "massive bleeder." Other factors which are involved in comparing results are variations in the nutrition and general health of the patients, differences in availability of adequate supplies and equipment, changes in the status of

knowledge of physiology and surgery, and variations in the personnel concerned with the care of patients.

With these facets of the problem in mind, the present study was undertaken to compare three established methods of management of massive upper gastrointestinal hemorrhage.

Review of the authors' cases and of the reports of others indicates that the majority of these cases are bleeding from peptic ulcers; this is a factor which is difficult to evaluate during the acute emergency. Emergency upper gastrointestinal x-ray examination has been used to aid in the diagnosis, but the method has not proved to be of value in the authors' hands because of fear of palpation of the abdomen, presence of blood clots in the stomach, and limited facilities.

The three types of therapy selected for study are: (1) nonoperative regimen, (2) immediately operative regimen, and (3) selectively operative regimen.

The nonoperative regimen used has been that of Andresen, a regimen which is based upon the concept that hypovolemia and hypotension prevent the clot from being dislodged from the bleeding vessel, that a quiet stomach assists in keeping the clot in place, and that low gastric acidity prevents the clot from being digested. Therefore, strict bed rest, reassurance, and frequent feedings of an antacid mild-gelatin mixture are the basis of the treatment. Blood is administered only for severe hypotension and evidences of anoxemia.

The immediately operative regimen is that proposed by Stewart et al., based upon the concepts that gross gastroduodenal bleeding (from peptic ulcer) is a dangerous complication of the responsible underlying disease, that it is difficult to determine when bleeding has ceased or when it will recur, that the longer anoxemia from acute hemorrhage goes uncorrected, the graver is the prognosis, that the diagnosis of gross bleeding can usually be made with reasonable accuracy, and that surgical arrest of such bleeding is feasible. Therefore, under this regimen the patient is immediately transfused and brought to the operating room as soon as the blood pressure and pulse are normal or it is determined that further improvement cannot reasonably be expected to occur preoperatively. Only patients who are moribund from associated diseases are excluded from operation.

The selectively operative regimen is based upon the concept that certain patients are more likely to die of hemorrhage than others. On the basis of the assumption that people with degenerative arterial disease are less likely to cease bleeding and are more likely to suffer complications of hypovolemia and anoxemia, all patients over 50 years of age and all patients who show clinical evidence of arteriosclerosis are operated upon as soon as it is possible to transfuse them and to restore their blood pressure and pulse to near normal levels. In this selectively operative regimen, patients who have a history of previous massive gastrointestinal hemorrhage are also

operated upon immediately because of the increased risk of repeated massive hemorrhage. Patients under 50 years of age and without arteriosclerosis or history of previous hemorrhage are treated according to the criteria of Hoerr, Dunphy, and Gray in that, if a predetermined amount of blood transfusion does not restore the blood pressure and pulse to normal and sustain them, operation is performed.

After search of the surgical literature had failed to reveal any controlled observations on the comparison of various methods of treating massive upper gastrointestinal hemorrhage, this study was undertaken to compare three well established methods of handling these patients. Using the criteria of Stewart for massiveness and acuteness of hemorrhage, these three methods of therapy have been evaluated simultaneously, being careful to randomize among the three methods of therapy on a statistically valid basis.

The authors' experience in 239 patients indicates that the selection of patients for therapy of massive bleeding on the basis of a loss of 40% of the calculated normal total circulating red cell mass is an extremely useful one. No patient in the present series who had lost less than 40% of his normal total circulating red blood cell mass had died of gastroduodenal bleeding. It might be suggested, therefore, that mortality figures based upon groups of patients which include those who have lost less than 40% of their normal red cell mass are less significant than those based on the criteria of Stewart.

While the majority of patients in the nonoperative therapy group died of the exsanguination, the majority of those in the operative groups died of postoperative complications. However, the mortality from operation in subgroup II was 11%. Also, it must be realized that the patients who were treated nonoperatively may be subjected to the same risk over again from a subsequent episode of massive hemorrhage. The patients who have had gastrectomies appeared less likely to experience this risk thereafter.

The operation used in all of these cases was 75% subtotal gastrectomy with a short loop Hofmeister-Polya retrocolic gastrojejunostomy. The authors believed that the use of different types of surgical therapy in selected cases might lower the operative mortality in these elderly patients. Perhaps the application of vagotomy in patients who are bleeding from gastritis—as suggested by Mixter and Hinton—would reduce the postoperative complications in this group. Also, the use of segmental resection of the stomach, plus pyloroplasty, as suggested by Wangensteen, may make the operation in bleeding duodenal ulcer less formidable and result in a lower risk in this group. The authors have retained the original operative procedure in the interest of minimizing the number of variables in the study.

Management of 130 patients suffering from massive upper gastrointestinal bleeding was divided into nonoperative, immediately operative, and selectively operative regimens by statistically valid means.

The mortality rate was 14% in each of the groups of patients who were properly handled according to the vrrious therapy regimens. Although the

operative therapy for a single episode of massive upper gastrointestinal bleeding was in this study identical to that of nonoperative therapy, the patient mortality may be lower in the operative group because these patients are usually no longer subject to further episodes of massive bleeding.

The mortality in the group of patients subjected to immediate operation was 11%. No patient who lost less than 40% of the calculated normal total circulating red blood cell mass died of exsanguinating hemorrhage. (Karlson, K. E., et al., Results of Three Methods of Therapy for Massive Gastroduodenal Hemorrhage - A Statistically Valid Comparison: Ann. Surg., 148: 594-602, October 1958)

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Injuries to the Head

Injuries to the head are commonly seen in every active emergency service. Although their management is uncomplicated in many instances, successful therapy often depends not only upon frequent examination of the patient, but also upon carefully timed definitive surgery. The classic signs of a rapidly expanding, space-occupying intracranial lesion, when present, are extremely helpful, but when absent, the surgeon can be lulled into a false sense of security which may prove fatal to his patient. An evaluation of morbidity and mortality in a group of patients with craniocerebral injuries seen in a selected period in a large hospital with an active trauma service is presented.

Each patient in whom the diagnosis of injury to the head was suspected was hospitalized for at least 24 hours. The criteria for the diagnosis of injury to the head were: (1) history of unconsciousness following trauma; (2) presence of a neurologic sign; and (3) presence of a skull fracture.

Of the 795 patients admitted, 655 did not have a skull fracture or intracranial hemorrhage. The majority gave a history of momentary unconsciousness or period of amnesia. The residual complaints were frequently slight headache, vertigo, and nausea.

Management consisted of strict bedrest and administration of nonnarcotic analgesics as a part of symptomatic relief. The patients were wakened every 4 hours for notation of vital signs and evaluation of consciouslevel.

They were strictly confined to bed until all subjective complaints were absent and were permitted to assume the position in bed that was most comfortable so long as it was horizontal. After a trial period of ambulation, they were discharged and followed up as outpatients. If symptoms recurred, they were again strictly confined to bed.

One hundred and eleven patients (87%) with skull fractures did not have associated intracranial hemorrhage. The management of patients with skull

fractures who showed no evidence of depression or associated intracranial hemorrhage was similar to that of those with mild head injuries. Ambulation in most cases, however, was not permitted until after the second week. Subjective complaints were used to determine the time of ambulation. Prophylactic antibiotics were given when there was evidence of communication between the fracture site and the contaminated areas.

Twenty-nine patients had proved intracranial hemorrhage; 20 of these had subdural hemorrhages. Of the 759 patients with injuries to the head seen in one year at Hurley Hospital, Flint, Mich., 3.6% had proved intracranial hemorrhage. Fifty-one percent of the patients with intracranial hemorrhage died within 48 hours following trauma.

Surgery within the first 48 hours was of benefit only in the case of epidural hemorrhage occurring 5 hours prior to surgery. The patient survived. All patients with subdural hemorrhage in whom surgery was considered necessary within the first 48 hours died.

In the group of patients with subdural hemorrhage, the best survival rate was found in those (1) who lived 48 hours following trauma, (2) were under 40 years of age, and (3) were operated upon prior to the seventh day post-trauma. All of the patients presented localizing neurologic signs which prompted surgery.

Lack of localizing signs in the patients surviving more than 48 hours caused delay of surgery or misdiagnosis resulting in death. These were in the older age group with ages ranging from 50 to 75 years.

In every patient presenting a progressive deepening of conscious level, with or without the presence of a history of trauma or localizing neurologic signs, a diagnosis of subdural hemorrhage should strongly be considered. The over all mortality rate in the 795 cases was 3%. (Cammack, K. V., Welborn, K., Curry, G. J., Injuries to the Head: Am. J. Surg., 96: 615-617, November 1958)

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Navy Problems in Cold Weather Medicine

(This is the second and concluding part of an article on Cold Weather Medicine The first part was published in the 21 November 1958 issue of the Medical News Letter.)

Environmental Sanitation

An important problem confronting men on the trail or in temporary bivouacs in polar regions is that of obtaining sufficient water to prevent dehydration and still have enough left over to meet minimal needs of personal hygiene. It is only in relatively permanent shore bases that sufficient fuel is available to melt snow or ice in quantities needed for bathing, laundry, and sterilization of mess gear.

Waste disposal is also a serious problem because the frozen ground in winter and the permafrost in summer makes the construction of a sanitary sewerage system impossible. Widespread fecal contamination of the encampment area is thus a real danger. To prevent indiscriminate deposits of excreta, heated latrines close to the living quarters are mandatory. The collection of excreta in single large containers or in individual receptacles for burial, burning, or dumping on sea ice is at present the only practical answer to sanitary waste disposal. Latrines using an activated sludge process for aerobic digestion of sewage are now in the experimental stage.

In view of these limitations, the danger exists of disabling outbreaks of enteric diseases and other diseases associated with inferior sanitation. In practicing preventive medicine, the medical officer might well begin by indoctrinating officers and men on shore duty in the Arctic in the rudimentary facts of epidemiology.

First Aid and Evacuation of Combat Casualties

Environmental cold poses a serious threat to the survival of any man injured either accidentally or in combat. Inactivity enforced by the injury reduces metabolic heat production to low levels. If shock complicates the picture, heat production is reduced still further. Under these conditions, hypothermia develops rapidly.

Of primary importance in handling combat casualties in the Arctic, therefore, is the speedy evacuation of the casualty to a warm shelter where more advanced treatment is possible.

First aid on the spot should be limited to controlling hemorrhage, splinting fractures, and providing extra insulation in the form of a sleeping bag or evacuation bag. Chemical or electrical heating pads should be used if available.

Blood and blood substitutes and medications in aqueous vehicles cannot be administered in front line areas in the cold, because such liquids turn solid. Splints must be applied over the clothing, and no metal should touch the skin. Tourniquets are not to be used because obstructing the blood flow to an extremity rapidly leads to frostbite of the ischemic part. Dressings to wounds must be applied through small openings in the clothing to avoid excessive chilling.

The first step in the evacuation of non-ambulatory casualties is by litter or man-drawn sled to an advance aid post where further treatment can be given in heated surroundings. From here the casualty is evacuated by motorized over-snow tracked vehicles such as the weasel or otter to the battalion aid station, or by heated helicopter to a treatment center farther to the rear. In amphibious operations, advanced treatment may be given aboard beached LST's converted to hospital ships, or casualties may be transported in heated and covered amphibious vehicles or landing craft to a hospital ship or APA anchored offshore.

At this point, cold weather problems end for both the doctor and the wounded man, definitive treatment and convalescent care being no different here than in other climates.

Research

The Navy Bureau of Medicine and Surgery and the Office of Naval Research have supported laboratory and field studies in cold weather medicine since early in World War II.

In the laboratory, basic research at the Naval Medical Research Institute (NMRI) on circulation in the feet during immersion in cold water led to the vapor barrier concept of foot insulation from which the present combat boot was developed.

At present, research on cold problems is continuing at NMRI, and includes studies on the physical processes involved in freezing mammalian tissue, the pathological physiology of circulation in experimental frostbite, pituitary-adrenal activation from intense cold exposure in animals, and lastly, human studies on heat output in the cold using a new method for direct heat measurement called gradient calorimetry.

Housed in its own building at NMRI, the Human Gradient Calorimeter makes possible the continuous and rapid recording of total heat output and its major partitions in subjects at rest and doing measured work under a wide range of environmental temperatures. It is also possible to make simultaneous measurements of heat production by indirect calorimetry using gas analysis of the subject's expired air. By knowing both the rate of heat loss measured directly as well as the rate of heat production measured by indirect calorimetry, the investigator obtains a complete and graphic picture of heat balance and heat storage in the subject both during steady states and during transient changes in thermal equilibrium.

As the calorimeter temperature is reduced in successive tests, the pattern of heat output in subjects at rest and performing standardized work changes in a characteristic and striking manner, with heat output at rest increasing and the excess heat output during work decreasing with each decrement in temperature.

The effect of a change in posture, the administration of some drugs, such as mecholyl and alcohol, recovery from immersion in a cold bath, and the effect on heat output of sudden exposure to cold are some of the other procedures which have been tested in the gradient calorimeter at NMRI.

Developments in protective clothing for shipboard personnel are being conducted in the laboratory of the Navy Textile and Clothing Office, Brooklyn, N. Y. Design of cold weather and immersion clothing for Navy fliers is one mission of the Navy Air Material Center in Philadelphia, Pa. Tests of Marine Corps cold weather gear are conducted by the Naval Medical Field Laboratory at Camp Lejeune, N. C.

Field studies on medical and dental problems in cold weather are part of the Navy program during Operation Deep Freeze. Among these are included a psychiatric evaluation of men during prolonged isolation in the Antarctic region, a study of the spread of virus diseases through groups of men who have been isolated all winter when exposed to newcomers arriving by plane with the onset of Antarctic spring, as well as a joint investigation with the Air Force on acclimatization and energy requirements in the cold.

Current studies on changes in blood and urine chemistry in Marine Corps trainees undergoing intensive winter exercises in the High Sierras are designed to disclose patterns of endocrine activity during exposure of men to combined stresses including severe cold. Field sanitation in cold weather has been investigated in this same training area. Analysis of the decrement in working efficiency known to occur in the cold was the object of a study recently conducted at Ft. Churchill, Manitoba.

Summary

Although no medical entities have been discovered which are unique to the Arctic and Antarctic areas, the adverse physical environment and remoteness of these regions lend new significance and greater magnitude to otherwise commonplace problems of keeping warm and adequately fed, treating injuries, and preventing the spread of disease through environmental sanitation. Application of new knowledge obtained by laboratory and field research in cold weather physiology and medicine will lead to improved methods of selecting and training men for cold weather assignment and will provide them with better food, clothing, shelter, and more sanitary surroundings. By constantly improving the practices of cold weather medicine through research, the medical officer contributes not only to the comfort, health, and efficiency of men under his care, but also to the success of Navy missions in Arctic and Antarctic zones. (CDR D. Minard MC USN, Thermal Stress Branch, OccMedDispDiv, BuMed)

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American Board of Obstetrics and Gynecology

Office of the Secretary:

Robert L. Faulkner, M.D.
2105 Adelbert Road
Cleveland 6, Ohio

The next scheduled examinations (Part II), oral and clinical for all candidates will be conducted at the Edgewater Beach Hotel, Chicago, Ill., by the entire Board from May 8 through 19, 1959. Formal notice of the exact time of each candidates's examination will be sent him in advance of the examination dates.

Candidates who participated in the Part I examination will be notified of their eligibility for the Part II examinations as soon as possible.

Current Bulletins of the American Board of Obstetrics and Gynecology outlining the requirements for application, may be obtained by writing to the Secretary.

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Courses in Modern Warfare, Atomic Weapons, Management of Mass Casualties and ABC Warfare Defense

Courses in which the Bureau of Medicine and Surgery has available spaces for assignment to qualified Medical officer and Medical Service Corps officers are listed as follows:

Course Title and Security Clearance	Location	Dates	Eligible Corps and Quota
Medical Aspects of Modern Warfare, Course No. 59-A TOP SECRET	Maxwell Air Force Base, Montgomery, Ala.	23 Mar - 3 Apr 1959	MC-2
Medical Aspects of Atomic Weapons, Course No. SWMS-5 TOP SECRET	AFSWP, Sandia Base, Albuquerque, N. M.	16-20 Mar 1959	MC-10
Management of Mass Casualties (2 courses) No clearance	Brooke Army Medical Center, San Antonio, Texas	27 Apr-1 May 1959 and 15-19 June 1959	MC-5 each course
ABC Warfare Defense Course No. 4 SECRET	Naval Schools Command, Naval Station, Treasure Island Calif.	18 May-12 June 1959	MC-30 MSC-5

Requests are invited from interested officers. Requests should be in letter form, forwarded via the Commanding Officers and submitted in time to reach this Bureau (Code 316) 8 weeks prior to the commencement date of course requested. Successful applicants will be issued Temporary Additional Duty and PerDiem orders chargeable against this Bureau's training funds. (ProfDiv, BuMed)

From the Note Book

1. The Surgeon General, Rear Admiral B. W. Hogan MC USN, participated in the Second National Congress on Rehabilitation of the Disabled, held in Mexico City, Mexico, November 17 - 22, 1958. This Congress, organized by the Mexican Rehabilitation Association, and sponsored by the XIII National Assembly of Surgeons in Mexico, serves to promote rehabilitation for the Republic of Mexico, and to make studies of the unmet needs in various programs of rehabilitation. Topics for discussion included Rehabilitation of the Orthopedically Disabled; Rehabilitation of Persons Disabled by Speech and Hearing Difficulties; Rehabilitation of the Blind and the Visually Disabled; Rehabilitation of the Neurologically and Psychiatrically Disabled; and Rehabilitation of Persons with Cardiac and Respiratory Disabilities. (TIO, BuMed)

2. Rear Admiral R. W. Malone DC USN, Assistant Chief, Bureau of Medicine and Surgery, and Chief, Dental Division, Bureau of Medicine and Surgery, Navy Department, was placed on the retired list of the U. S. Navy 1 November 1958 after thirty-two years of continuous active service. (TIO, BuMed)

3. Rear Admiral C. W. Schantz DC USN was installed as the Assistant Chief for Dentistry and Chief of the Dental Division, Bureau of Medicine and Surgery, Navy Department, 3 November 1958. (TIO, BuMed)

4. CAPT R. E. Crowder MC USN, CDR R. J. McCarthy MC USN, and CDR W. A. Breathwit MSC USN were placed on the retired list 1 November 1958. (TIO, BuMed)

5. The 200,000 patient was admitted to the U. S. Naval Hospital, St. Albans, N. Y. This 200,000 admission came 15 years and 10 months after the hospital was placed in commission in February of 1943. In 1945, the installation was handling a daily patient load of well over 5000 World War II casualties. (USNH, St. Albans, N. Y.)

6. The number of reported cases of poliomyelitis for the week ended November 8, 1958, continues the downward trend in the number of cases reported during recent weeks. A total of 158 cases were reported; 96 of these were paralytic and 34 nonparalytic. Revised figures for the previous week were 201 total cases of which 122 were paralytic and 45 nonparalytic cases. For the week ended November 9, 1957, there were 71 cases reported, including 39 paralytic and 18 nonparalytic. (PHS, HEW)

7. Basic principles of management of pregnancy in the diabetic woman are: careful evaluation of the diabetic woman prior to or early in pregnancy;

meticulous diabetic and obstetric management throughout pregnancy, labor, and the puerperium; early termination of pregnancy, usually in the 36th week; and careful continuing pediatric care of the newborn. (Am. J. Obst. & Gynec., November 1958; R.A. Reis, M.D., et al.)

8. The operative procedure of esophagogastrectomy and antral excision is satisfactory for the treatment of certain patients with a short esophagus who fail to respond to medical management. A short esophagus with stricture is the chief indication for the procedure. (Ann. Surg., October 1958; F.H. Ellis, Jr. M.D., H.A. Anderson, M.D., O.T. Clagett, M.D.)

9. The purpose of this study was to determine the interracial incidence of hypertension and of valvular disease of the heart in patients attending Groote Scheuer Hospital, Cape Town during 1952 through 1956. (Am. Heart J., November 1958; V. Schrire. See Medical News Letter, Vol. 32, No. 5, P. 7)

10, A case of esophageal stricture in a 5-year old child resulting from ingestion of a single Clinitest Urine-sugar reagent tablet is presented. Successful treatment by esophageal resection and end-to-end anastomosis is described. (J. Pediat. November 1958; MAJOR E.J. Tomsovic MC USA: H. Jano, M.D.)

11. This article discusses the pathology, diagnosis, and treatment of liposarcoma with emphasis on the roentgenologic aspects. (Am. J. Roentgenol., November 1958; A. Schick, M.D., L.S. Rogers, M.D.)

12. A 16-year experience with carcinoma of the breast from a representative middle-size American community is reported. (Surg. Gynec. & Obst., October 1958; T.C. Moore, M.D., D.R. Judd, M.D., W.C. Moore, M.D.)

13. The pathogenesis and treatment of hyponatremia in congestive heart failure is discussed in Am. J. Med., October 1958; R.E. Weston, M.D., et al.)

14. Successful management of the cardiac arrhythmias depends on an accurate diagnosis. Regardless of the type of rhythm disturbance, there is one question which, if properly answered, usually makes the diagnosis easier, and that is to find the kind of atrial activity present. Various physical signs, as well as the electrocardiogram are of help in this regard. (GP, November 1958; E.W. Reynolds, Jr., M.D., F.D. Johnston, M.D.)

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Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget 19 June 1958.

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DENTAL SECTION

Drugs for Post-Extraction Pain Studied at Great Lakes

Clinical studies to determine the effectiveness of non-narcotic analgesic preparations for the relief of post-extraction pain were completed recently at the Dental Research Facility, U. S. Naval Training Center, Great Lakes, Ill., Seven types of tablets were dispensed at random in packages which were coded so that the tablets could not be identified by either the dispensing dental officer or the patient. The tablets included aspirin, APC, NAC, Tabcin, Apromal, Apamide, and a placebo.

Following extractions, each patient was given an envelope containing four plain white tablets with instructions for their use in event of pain. When the patient returned for postoperative examination on the following day, he completed a questionnaire on the effect of the tablets.

Of the 3320 questionnaires which were tabulated, 1078 (32%) indicated that the patient had no post-extraction pain and used no tablets. Among the patients who used the placebo, 77.10% reported effective relief from pain. This was considered an unusually high degree of effectiveness in comparison with the range of from 82.33 to 92.16% of patients who experienced relief from the use of the other tablets. No deleterious effects resulted from the use of any of the tablets. (LCDR W. L. White DC USNR (Inactive); LCDR H. R. Englander DC USN; and W. U. Carter D. D. S., M. S., Professor of Pedodontics, University of Kansas City, Kansas City, Mo., A Clinical Evaluation of Analgesic Drugs)

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Dental Care Means Dental Health

Recently reported was the fourth in a series of studies related to the dental health of 2027 recruits at the U. S. Naval Training Center, Bainbridge, Md. The object of the study was to determine the relationship of the frequency and regularity of professional dental visits to various factors indicating the state of dental health of the individual.

The study revealed that there were fewer carious teeth, carious surfaces, and teeth to be extracted, and shallower cavities on the average in

those who sought regular dental attention. Also, in this group there was better oral hygiene, gingival condition, and dental esthetics. The evidence of dental care was found to be in direct relationship to the frequency and regularity of dental visits made by the individual. (CDR G. H. Rovelstad DC USN, CAPT R. B. Wolcott DC USN, Relation of the Frequency and Regularity of Dental Visits to the State of Dental Health.)

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BuMed Notice 6750 - Conversion of Dental Operating Units to Higher Speed Operation. This notice announces continuation in fiscal year 1959 of the program to convert dental operating units to higher speed operation, and furnishes information, guidance limitations, and instructions relative to procurement of nonstandard items required for conversion.

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RESERVE SECTION

Promotion of Naval Reserves

This rather broad subject is discussed under the headings of "Eligibility," "Selection," "Qualification," and "Appointment." Particular appreciation is expressed to the author, CDR E. P. Palm USN, Head, Reserve Officer Promotions Branch, Bureau of Naval Personnel, for permission to publish this information considered to be of interest to all Naval Reserve officers.

"During the period, January to June 1959, thoughts of many U. S. Naval Reserve officers will be directed to the Bureau of Naval Personnel and the ultimate results of the various Reserve selection boards that will be in session.

Selection for promotion to the next higher grade is a very competitive process whereby all eligible personnel are competing and being evaluated on the basis of their past demonstrated performance as reported by their reporting seniors, and are further evaluated as to their relative qualifications to serve in the next higher grade upon mobilization of the Naval Reserve. The process of evaluation and classification is performed by a group of experienced senior officers who are ordered to serve as

members of the selection board by the Secretary of the Navy. The deliberations of the selection board are in strict confidence, and only the final report listing the recommended selectees is published.

In order to explain the selection process more completely, it is desirable to discuss the promotion cycle as it pertains to the active-inactive Reserve officer. The promotion cycle may be divided into four major categories; namely, eligibility, selection, qualification, and appointment. The functions performed in each category are as follows:

1. Eligibility

The promotion zones are established after a very comprehensive projected study of the grade structure in the U. S. Naval Service has been completed. The purpose of the study is to assure equitable promotion opportunities among succeeding groups of Reserve officers within the authorized grade limitations as established by law.

Official announcement of the promotion zones and the convening dates of the selection boards is made by yearly Bureau of Naval Personnel notices and also by publications, such as: "Naval Reserve Association News," "The Naval Reservist," "All Hands," and "Navy Times." If an officer's date of rank places him within the promotion zone, he must meet other requirements to establish his eligibility for consideration by the appropriate selection board. The additional requirements are that he must be in an active status and that he was credited with at least 12 retirement points during the preceding fiscal year. In determining those officers who have participated to the extent that they are credited with the minimum retirement points, the Bureau of Naval Personnel is assisted by the Reserve Officer Performance Recording Activity, which is located at Omaha, Nebraska. Eligibility for consideration is established and determined as of the end of the fiscal year preceding the year in which considered for promotion. The records of those officers who have met the requirements as outlined above will be submitted to the proper selection board for consideration.

2. Selection

The selection process is performed by a group of officers who are ordered to the Bureau of Naval Personnel specifically for duty as members of a selection board, and who are directed by the Secretary of the Navy to perform their duties in accordance with the Secretary of the Navy regulations for promotion of Naval Reserve officers in accordance with the "Reserve Officer Personnel Act of 1954," which is quoted as follows:

> "From among those officers who are eligible for consideration for promotion, each selection board shall recommend for promotion those officers whom it considers best qualified to assume, upon the mobilization of the Naval Reserve,

the duties appropriate to their classification in the grade for which recommended."

As specified by the "Reserve Officer Personnel Act of 1954," at least 50 per centum of the selection board members shall, to the extent practicable, be Reserve officers, and all members shall be senior in permanent grade and temporary rank to any officer being considered by that board, and no officer shall serve on two consecutive selection boards when the second of such boards considers any of the officers who were considered, but not recommended for promotion to the same grade by the first selection board upon which he served. The Act further requires that all boards will be composed of at least five members, each of whom swear or affirm that he will, without prejudice or partiality, and having in view both the special fitness of officers and the efficiency of this Armed Force (Navy, as this case is), perform the duties imposed on him as a member of such board. In arriving at a decision relative to each individual eligible officer's promotional potential, the selection board considers the information contained in the fitness report jacket, the selection board jacket, any record of legal proceedings in cases where eligible officers are concerned, and health records of individual eligible officers as requested by the selection board. Since the proceedings of the various selection boards are conducted in strict confidence, no information is available as to why certain officers are recommended for promotion and others fail to be recommended. In general, failure of selection may be attributed to the fact that, within the numerical limitations as established by the Secretary of the Navy, an officer's record did not compare favorably enough with those of his contemporaries to permit his selection. Missing records do not automatically disqualify candidates from consideration; for if an officer has established his eligibility, his record will be submitted to the appropriate selection board for consideration, regardless of its condition. The selection board is required to certify in its record of proceedings that it has carefully considered the case of every officer whose name was furnished the board by the Chief of Naval Personnel for the Secretary of the Navy.

"The Reserve Officer Personnel Act of 1954" requires that not less than a majority of the total membership of any selection board must concur in each recommendation made by the board. This provision makes certain that selections cannot be made in a careless, indifferent manner.

A selection board is charged with further responsibility; namely, during its deliberations and after it has completed its selection, it reconvenes itself as an examining board to pass upon the professional qualifications of all recommended candidates subject to their meeting further requirements as directed by the Secretary of the Navy.

A selection board report may not be published until it has been routed to cognizant officers in the Bureau of Naval Personnel, the Judge Advocate

General, the Secretary of the Navy, the Secretary of Defense, and finally to the President of the United States for his signature of approval.

3. Qualification

After the report of the selection board has been approved by the President of the United States, individual letters of notification are prepared and mailed to each selectee. The letters of notification explain the requirements for qualification; that is, professional and physical and are sent via the Reserve Officer Performance Recording Activity, who, by endorsement advise the selectee of his current promotion point status and the Commandant, or command that holds his record, who endorses the letter to the officer selectee. Prior to 1 July 1957, the letter of notification stated that the selectee had one complete fiscal year following the year in which selected to qualify professionally and physically. On 2 July 1957, the Secretary of the Navy approved revised regulations for promotion of Naval Reserve officers pursuant to the "Reserve Officer Personnel Act of 1954." The revised regulations provide for two fiscal years in which to qualify professionally and physically. There has been no change in the number of promotion points required for professional qualification; it still remains at 24 promotion points multiplied by the years in grade, the product of which cannot exceed 144.

An officer on inactive duty who fails to earn the prescribed number of promotion points prior to the end of the second fiscal year following the fiscal year in which such officer was recommended for promotion shall not be considered professionally qualified for promotion after that date. The name of such an officer will be presented to the next ensuing selection board, which is constituted as an examining board for re-examination of his professional qualifications. If not again found to be professionally qualified for promotion, the officer shall be held for all purposes to have twice failed of selection for promotion. If found to be professionally qualified for promotion by the examining board, subject to the earning of prescribed number of promotion points, the officer shall be given an additional two years to complete his professional qualifications.

Promotion points may be earned by:

1. Completion of approved correspondence courses, Naval Reserve officer courses, or normally creditable portions of such courses.

2. Twelve promotion points may be credited for each fiscal year in which the officer's participation in the Naval Reserve training meets the following minimum standards:

   a. For fiscal years 1950 through 1955, completion of a year of satisfactory Federal service by the accrual of 50 retirement points, provided that at least 12 of the retirement points were credited for drills and/or days of active duty or active duty for training.

b. For fiscal years 1956 and 1957, completion of 14 days of active duty including training duty, and/or periods of appropriate duty; or attending seventy-five percent of the scheduled drills, including drills attended incident to the completion of Naval Reserve Officer School courses prescribed in the table of organization for the unit or units in which enrolled but in no case less than 12 drills.

c. For fiscal years 1958 and subsequent, completion of 14 days of active duty, including training duty, and/or periods of appropriate duty; or attending seventy-five percent of the drills with the exception of the drills attended incident to the completion of Naval Reserve Officer Training courses, prescribed in the table of organization for the unit or units in which enrolled but in no case less than 18 drills.

3. Enrollment in an accredited college or university or in a course of residency training as approved by the Chief, Bureau of Medicine and Surgery - one promotion point for each semester hour or equivalent unit of credit, satisfactorily completed. Not more than twelve promotion points will be credited for such schooling during an applicable fiscal year.

4. For extended active duty (not including training duty) between 1 July 1950 and 1 July 1955: one promotion point for each month of continuous active duty. For extended active duty (not including training duty) subsequent to 1 July 1955: two promotion points for each month of continuous active duty.

5. For satisfactory completion of other approved training or instruction, the number of promotion points to be credited for such training or instruction may be evaluated and assigned by the Chief of Naval Personnel.

4. Appointment

When an officer has fulfilled the professional requirements and has been found physically qualified for retention in the U. S. Naval Reserve, he will address a letter to the Chief of Naval Personnel via the command that maintains his record requesting that an appointment to the next higher grade be issued him. It is necessary that he state the correct dates when he qualified professionally, as well as physically, in the official letter of request. During the period when the selectee is qualifying, the Bureau of Naval Personnel is constantly checking to ascertain if a vacancy has been established for the selectee's running mate. If the selectee's running mate has made his number, then the selectee may be appointed, if qualified, to the next higher grade, and he will receive the same date of rank. In no case will a selectee be appointed to the next higher grade until a vacancy has been established for his running mate. In some cases, because

of this requirement, it is necessary for a selectee, who has actively participated in the Reserve program, and is fully qualified, to wait several months after he has originated his request before he is issued an appointment to the next higher grade. All appointments issued are for temporary promotion, and a permanent commission is issued only when his running mate is eligible to receive a permanent commission.

The temporary appointment is mailed to the qualified selectee via the command that maintains his record, and he endorses it to the officer concerned. It is only after the selectee has executed the acceptance and oath of office that he is eligible to assume the title of the next higher grade.

In Summation

The entire selection process is a very complicated process and the Navy spends many thousands of dollars each year to make certain that all eligible persons are treated in as fair and impartial a manner as is physically possible. Many counter checks are employed to assure that the records of all eligible candidates are considered by the designated board. Promotions above the grade of lieutenant (junior grade) can only be made as a result of a selection board recommendation.

There is one important thought you should never forget - When the time comes that your name and records appear before a selection board, JUST RELAX, because it's then too late for you to do anything about it. The members of your board take over at that point, and your fate is in their hands.

For additional information, the following BuPers Instructions are recommended:

1412.1C Promotion of Naval Reserve officers to grades above lieutenant (junior grade) pursuant to the "Reserve Officer Personnel Act of 1954."

1412.10A Promotion of Naval Reserve ensigns pursuant to the "Reserve Officer Personnel Act of 1954."

1416.4B Professional fitness for promotion of Naval Reserve officers not on active duty.

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Please forward requests for Change of Address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

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PREVENTIVE MEDICINE SECTION

A Challenge - Prevention of Streptococcal Diseases and Their Complications and Sequelae in the Naval Service

Studies carried out by the Armed Forces, the Armed Forces Epidemiological Board, and other investigators have shown that rheumatic fever is a complication of infections by certain types of streptococci and that among recruits respiratory infections by these organisms are by far the most important cause. Further, it has been demonstrated repeatedly that penicillin, when given to all recruits prophylactically at the onset of an outbreak of streptococcal respiratory disease and continued throughout the remainder of the winter and early spring, will not only stop the respiratory outbreak, but will also prevent the appearance of cases of rheumatic fever.

Concomitantly, it has been shown that adequate dosage of penicillin, given to patients who are ill with streptococcal disease, will prevent the development of rheumatic fever complications, as well as other complications and sequelae, such as sinusitis, middle ear disease, glomerulonephritis, and bacterial endocarditis.

In addition, it has been demonstrated that penicillin administered prophylactically to individuals with a history of rheumatic fever will prevent recurrent attacks.

In an attempt to assess the potential role of these accepted measures in the naval service, analysis was undertaken of a tabulation of rheumatic fever cases for calendar year 1957 reported on the "Individual Statistical Record of Patient (Nav-Med-F)."

Only new cases (A, AD, ACD) which had not existed prior to entry into the service were included in the study. Patients readmitted or remaining from the previous year were excluded. No individual was counted as more than one admission for the year. The distribution is shown in Table 1.

Table 2 lists the new cases and new case rates for Navy and Marine Corps personnel according to length of service. Rates for both classes of personnel were comparatively high during the first year of service even though penicillin prophylaxis programs against streptococcal disease at 4 of

Table 1.

RHEUMATIC FEVER, ACTIVE RHEUMATIC HEART DISEASE, AND SYDENHAM'S CHOREA, DIAGNOSIS ACCORDING TO TYPE OF ADMISSION, NEW CASES AND NEW CASE RATES PER 100,000 AVERAGE STRENGTH, NAVY AND MARINE CORPS, 1957[1]

Code	Title	New Cases			
		Total	A	AD	ACD
	TOTAL	131	119	12	-
4500	Rheumatic fever without heart involvement	64	58	6	-
4513	Rheumatic fever with heart involvement, n.e.c.	41	39	2	-
4510	Pericarditis, rheumatic, active .	3	3	-	-
4511	Endocarditis, rheumatic, active .	15	12	3	-
4512	Myocarditis, rheumatic, active. .	7	7	-	-
4520	Chorea-Sydenham's, without heart involvement	-	-	-	-
4521	Chorea-Sydenham's, with heart involvement	1	-	1	-

1 EPTE cases not included. RA and REM not included. No individual counted as more than one admission for the year.

the 5 recruit training centers reduced the incidence among personnel with less than 3 months of service to numbers well below what might have otherwise occurred.

It might be considered reasonable to ascribe most of the cases occurring among personnel with less than 4 months of service to streptococcal infections incurred at recruit training centers. There were 22 Navy and 27 Marine Corps patients in this length of service group.

Personnel with 4 or more months of service experienced steadily lower rates for active rheumatic fever. However, such personnel accounted for 82 (63% of the cases) and should the experience of 1957 prove typical, they constitute a significant reservoir of rheumatic fever and its sequelae in the naval service once the disease has been eliminated in recruits.

Prevention. Preventive measures to reduce the incidence of these disabling diseases are available for mass, and for individual, application.

Mass prophylaxis is already practiced at recruit training activities when bacteriological and clinical surveillance reveal a rising prevalence of streptococcal respiratory disease. These programs have been helpful in preventing

Table 2.

RHEUMATIC FEVER, ACTIVE RHEUMATIC HEART DISEASE AND SYDENHAM'S CHOREA, ACCORDING TO LENGTH OF SERVICE, NEW CASES, AND NEW CASE RATES PER 100,000 AVERAGE STRENGTH, NAVY AND MARINE CORPS, 1957[1]

Length of Service	Type of Personnel	New Cases	
		Number	Rate per 100,000 Average Strength
0 - 2 months	Navy	12	40
	Marine Corps	10	74
3 - 5 months	Navy	12	37
	Marine Corps	23	186
6 - 11 months	Navy	8	10
	Marine Corps	10	50
12 - 23 months	Navy	13	1
	Marine Corps	4	1
2 - 7 years	Navy	28	1
	Marine Corps	5	< 1
8 years and over	Navy	5	2
	Marine Corps	1	< 1

[1] See footnote to Table 1.

streptococcal diseases and rheumatic fever, and are being made even more efficient through improvements in surveillance methods and prompt application before streptococcal infections become widespread.

Reduction in the numbers of patients in the naval service at large, must, of necessity, depend upon early detection of cases, thorough treatment, and prevention of relapses through penicillin prophylaxis. Here, again, highly efficient measures are available which when energetically applied promise to significantly reduce disability among both naval personnel and their dependents. Both the American Academy of Pediatrics and the American Heart Association have sponsored statements concerning treatment and prophylaxis for the individual. Excerpts from these statements follow:

Report of the Committee on the Control of Infectious Diseases, American Academy of Pediatrics, 1957. The adequate treatment of streptococcal infections has assumed great importance since it has become evident that in this way it is possible to prevent the development of acute glomerulonephritis

and rheumatic fever. Penicillin is the most effective treatment and should be continued for at least 10 days regardless of prompness of clinical recovery. Treatment may consist of procaine penicillin 300,000 units intramuscularly daily, oral penicillin 200,000 units 4 to 6 times a day, procaine penicillin with 2% aluminum monostearate every third day for 3 injections, or a single dose of 600,000 units of DEBD (N,N'-ydiben zylethylenediamin, dipenicillin G) intramuscularly.

If the patient is sensitive to penicillin, chlortetracycline, oxytetracycline, or tetracycline may be given in therapeutic doses for 10 days. Sulfonamides are not satisfactory for treatment because such treatment apparently does not reduce the likelihood of the development of nephritis and rheumatic fever.

No treatment of exposed susceptibles is recommended by most health departments. However, in certain circumstances it may be desirable to culture the exposed individuals and treat those with positive cultures, expecially if the index case developed nephritis. Intimate and hospital contacts of cases may be given prophylactic penicillin. The importance of careful investigation and adequate treatment of any contact who has a history of rheumatic fever is well known.

Report by the Committee on Prevention of Rheumatic Fever and Bacterial Endocarditis, American Heart Association, 1957. Rheumatic fever is a recurrent disease which in most instances can be prevented. Because both the initial and recurrent attacks of the disease are precipitated by infections with group A streptococci, prevention of rheumatic fever and rheumatic heart disease depends upon the control of streptococcal infections. This may be accomplished by (1) early and adequate treatment of streptococcal infections in all individuals and (2) prevention of streptococcal infections in rheumatic subjects.

Treatment of Streptococcal Infections in the General Population. Following epidemics and in certain population groups, it has been found that about 3% of untreated streptococcal infections are followed by rheumatic fever. Adequate and early penicillin treatment, however, will eliminate streptococci from the throat and prevent most attacks of rheumatic fever.

Diagnosis of Streptococcal Infection

In some instances, streptococcal infections can be recognized by their clinical manifestations. In many patients, however, it is impossible to determine the streptococcal nature of a respiratory infection without obtaining throat cultures. The following section on diagnosis has been included in order to assist physicians in making a positive diagnosis and assuring adequate treatment.

The accurate recognition of individual streptococcal infections, their adequate treatment and the control of epidemics in the community presently offer the best means of preventing initial attacks of rheumatic fever.

Common Symptoms

Sore throat - sudden onset, pain on swallowing
Headache - common
Fever - variable, but generally from 101° to 104° F
Abdominal pain - common, especially in children; less common in adults
Nausea and vomiting - common, especially in children

Common Signs

Red throat
Exudate - usually present
Glands - swollen, tender lymph nodes at angle of jaw
Rash - scarlatiniform
Acute otitis media) frequently due to the streptococcus
Acute sinusitis)

In the absence of the common symptoms and signs, occurrence of any of the following symptoms is usually not associated with a streptococcal infection: simple coryza; hoarseness; cough.

Laboratory Findings

Throat Culture. Hemolytic streptococci are almost invariably recovered on culture during acute streptococcal infections.

White Blood Count - generally over 12,000

Treatment of Streptococcal Infections

When streptococcal infection is suspected, tre nent should be started immediately. Penicillin is the drug of choice. ective blood levels should be maintained for a period of 10 days to p ent rheumatic fever by eradicating the streptococci from the throat.

Penicillin may be administered by either intramuscular or oral route. Intramuscular administration is recommended as the method of choice because it insures adequate blood levels for a sufficient length of time. Oral therapy by contrast is dependent upon the cooperation of the patient.

In the treatment of streptococcal infections in known rheumatic subjects, parenteral penicillin should be employed in at least the maximum doses recommended below.

Recommended Treatment Schedules

Intramuscular Penicillin

Benzathine Penicillin G

Children. One intramuscular injection of 600,000 units to 900,000 units

Adults. One intramuscular injection of 900,000 to 1,200,000 units

Procaine Penicillin with Aluminum Monostearate in Oil

Children. One intramuscular injection of 300,000 units every third day for 3 doses

Adults. One intramuscular injection of 600,000 units every third day for 3 doses

Oral Antibiotics

To prevent rheumatic fever by eradicating streptococci, therapy must be continued for the entire 10 days even though the temperature returns to normal and the patient is asymptomatic.

Penicillin.

Children and Adults. 200,000 to 250,000 units 3 times a day for a full 10 days

Other Antibiotics

Broad spectrum antibiotics, such as erythromycin and the tetracyclines, are useful in patients who are sensitive to penicillin. If given for 10 days these antibiotics are probably as effective as oral penicillin in the treatment of streptococcal infections, but are subject to the same uncertainties of administration by the oral route.

Not Recommended

The following therapy is not effective in preventing rheumatic fever when used as treatment for streptococcal infections: sulfonamide drugs; penicillin troches or lozenges.

Prevention of Streptococcal Infections in Rheumatic Individuals

Many streptococcal infections occur without producing clinical manifestations. For this reason, prevention of recurrent rheumatic fever must depend on continuous prophylaxis rather than solely on treatment of acute attacks of streptococcal disease.

Recommendations for Prophylaxis

Who Should be Treated? In general, all patients who have a well documented history of rheumatic fever or chorea, or who show definite evidence of rheumatic heart disease, should be given continuous prophylaxis.

Although recurrent attacks of rheumatic fever occur at any age, the risk of recurrences decreases with the passage of years. Some physicians may wish to make exceptions to instituting prophylaxis in certain of their adult patients, particularly those without heart disease who have had no rheumatic attacks for many years.

How Long Should Prophylaxis be Continued? The risk of acquiring a streptococcal infection and the possibility of rheumatic fever recurrences continue throughout life. It is, therefore, suggested that the safest general procedure is to continue prophylaxis indefinitely.

When Should Prophylactic Treatment be Initiated?

Active Rheumatic Fever. As soon as the diagnosis of rheumatic fever is made or any time thereafter when the patient is first seen. The streptococcus should be eradicated with penicillin (see schedules) following which the prophylactic regimen is instituted.

Inactive Rheumatic Fever. In inactive rheumatic fever, prophylaxis should be instituted when the patient is first seen.

Should Prophylaxis be Continued During the Summer? Yes, continuously. Streptococcal infections can occur at any season, although they are more prevalent in the winter.

Prophylactic Methods - Intramuscular and Oral

Oral medication depends on patient cooperation. In most instances, failures of sulfonamide or penicillin prophylaxis occur in patients who fail to ingest the drug regularly. This can be avoided by long-acting depot penicillin given intramuscularly once a month.

Benzathine Penicillin G - Intramuscular

Dosage - 1,200,000 units once a month

Toxic Reactions - Same types as with oral penicillin, but occur more frequently and tend to be more severe. Some local discomfort usually is experienced.

Sulfadiazine - Oral

This drug has the advantage of being easy to administer, inexpensive and effective. (Other newer sulfonamides are probably as effective.) Although resistant streptococci have appeared during mass prophylaxis in the Armed Forces, this is rare in civilian populations.

Dosage - From 0.5 to 1.0 gm. once a day. The smaller dose is to be used in children under 60 pounds.

Toxic Reactions - Infrequent and usually minor. In any patient being given sulfonamides, consider all rashes and sore throats as possible toxic reactions, especially if they occur in the first 8 weeks. In patients on this prophylactic regimen, it is hazardous to treat toxic reactions or intercurrent infections with sulfonamides.

Chief Toxic Reactions Are:

Skin Eruptions - Morbilliform, continue drug with caution. Urticaria or scarlatiniform rash associated with sore throat of fever - discontinue drug.

Leukopenia - Discontinue if white blood count falls below 4000 and polynuclear neutrophiles below 35% because of possible agranulocytosis which is often associated with sore throat and a rash. Because of these reactions, weekly white blood counts are advisable for the first 2 months of prophylaxis. The occurrence of agranulocytosis after 8 weeks of continuous prophylaxis with sulfonamides is extremely rare.

Penicillin - Oral

Penicillin has the desirable characteristics of being bactericidal for group A streptococci and of rarely producing serious toxic reactions. A careful history of allergic reactions and previous response to penicillin should be obtained.

Dosage - 200,000 to 250,000 units once or twice a day. The latter is probably more effective.

Toxic Reactions - Urticaria and angioneurotic edema.

Reactions similar to serum sickness - include fever and joint pains and may be mistaken for rheumatic fever.

Although many individuals who have had reactions to penicillin may subsequently be able to tolerate the drug, it is safer not to use penicillin if the reaction has been severe and particularly if angioneurotic edema has occurred.

Protection of Rheumatic Fever Patients in Hospital Wards

Patients with rheumatic fever or rheumatic heart disease are often exposed to increased hazards in hospital wards as the result of contact with streptococcal carriers or patients with active streptococcal infections. Protection of the rheumatic patient is imperative because of the high rate of recurrence of rheumatic fever following streptococcal infection. In addition, to the customary precautions employed to prevent cross infections, the following procedures are recommended:

1. All hospital patients with streptococcal infections should be fully treated by one of the methods outlined in order to eliminate streptococci and avoid the carrier state.

2. Patients admitted with acute rheumatic fever should immediately receive a full course of antibiotic therapy, whether or not streptococci are isolated from the throat. As soon as the therapeutic course is completed, continuous streptococcal prophylaxis should be instituted.

3. Patients with inactive rheumatic fever or rheumatic heart disease should be placed on continuous streptococcal prophylaxis on admission to the hospital or as soon thereafter as the diagnosis is established.

Prophylaxis Against Bacterial Endocarditis

In individuals who have rheumatic or congenital heart disease, bacteria may lodge on the heart valves or other parts of the endocardium, producing bacterial endocarditis. Transient bacteremia which may lead to bacterial endocarditis is known to occur following various operative procedures including dental extractions and other dental manipulations which disturb the gums, the removal of tonsils and adenoids, the delivery of pregnant women, and operations on the gastrointestinal or urinary tracts. It is good medical and dental practice to protect patients with rheumatic or congenital heart disease by prophylactic measures.

Recommended Prophylactic Methods

Penicillin is the drug of choice for administration to patients with rheumatic or congenital heart disease undergoing dental manipulations or surgical procedures in the oral cavity.

Although the exact dosage and duration of therapy are somewhat empirical, there is some evidence that for effective prophylaxis reasonably high concentrations of penicillin must be present at the time of the dental procedure. The dosage regimens employed for long-term prophylaxis of rheumatic fever are inadequate for this purpose. High levels of penicillin in the blood over a period of several days are recommended to prevent organisms from lodging in the heart valves during the period of transient bacteremia.

Not only should penicillin prophyalxis be designed to afford maximum protection, but the method must also be practical. In general, the combined oral and parenteral route of administration is preferred. All patients should be instructed to report to their physician or clinic should they develop a fever within a month following the operation.

First Choice - Intramuscular and Oral Penicillin Combined

For 2 days prior to surgery - 200,000 to 250,000 units by mouth 4 times a day.

On the day of surgery - 200,000 to 250,000 units by mouth 4 times a day, and
600,000 units aqueous penicillin with
600,000 units procaine penicillin shortly before surgery
For 2 days after - 200,000 to 250,000 units by mouth 4 times a day.

Second Choice (if injection is not feasible) - Oral Penicillin

200,000 to 250,000 units 4 times a day beginning 2 days prior to the surgical procedure and continued through the day of surgery or dental procedure and 2 days thereafter.

Contraindications

A history of sensitivity to penicillin

Other Antibiotics

Erythromycin or the broad-spectrum antibiotics should be employed as prophylaxis in patients who are sensitive to penicillin. In those who are undergoing surgery of the urinary or lower gastrointestinal tract, oxytetracycline or chlortetracycline should be administered in full dosage for 5 days, beginning treatment 2 days prior to the surgical procedure.

Conclusion. Experience in 1957 suggests that mass prophylaxis among recruits, adequate treatment of patients with streptococcal diseases, and prophylaxis among persons who have had rheumatic fever and its complications have important roles to play in naval preventive and clinical medicine. Mass prophylactic measures have been approved, when indicated, in recruit training activities, and have controlled outbreaks of streptococcal respiratory disease and its complications. It remains for the medical service at large to reduce the incidence of the complications of streptococcal infections through individual treatment and prophylaxis as recommended by competent medical authorities. The recommendations of the American Academy of Pediatrics and The American Heart Association are restated.

(Communicable Disease Branch, BuMed)

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Make This a Fire-Safe Christmas

Every year, from a few days before Christmas to the week following New Year's, fires rage up and down the country. Many result from extra

hazards which exist only during the holiday season and from carelessness that would not be tolerated at any other time. These holiday fire tragedies are caused by little careless acts that seem so unimportant at the time. Such tragedies are needless if the following safety rules are observed:

1. Cut a growing tree or buy one that hasn't dried out from prolonged storage. (When too dry, branches are brittle and shed needles easily.) Saw the trunk off at a slant and place in water kept above the level of the cut for the entire time the tree is indoors.
2. Do not use candles on the tree or nearby where there is chance for an open flame to contact the tree or combustibles beneath the tree.
3. Use only electric lighting sets that bear the UL (Underwriters' Laboratories) label; before using, check all sets for frayed wires, loose connection, and broken sockets.
4. Don't let wrappings accumulate in the house; burn them or place them in a metal covered trash barrel.
5. Don't buy pyroxylin plastic toys, non-flameproofed costume suits, or toys operated by alcohol, kerosene, or gasoline.
6. Don't allow smoking near the tree amidst decorations or wrappings.
7. Keep matches, lighters, and candles away from children.
8. Have water-type fire extinguishers that work, buckets of water, or a garden hose connected to a faucet within reach of the tree.

If fire should strike, first get everyone out of the house and then call call the fire department immediately before attempting to fight the fire yourself.

(National Fire Protection Association)

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